CDC
CENTERS FOR DISEASE CONTROL

September 11, 1992 / Vol. 41 / No. 36

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

Extension of the Raccoon Rabies Epizootic — United States, 1992

Raccoon rabies, epizootic among raccoons in the southeastern and mid-Atlantic states, has become an increasingly important problem in the northeastern United States. The extension of the epizootic was largely responsible for the 43% increase in the total number of reported cases of animal rabies in the United States from 1990 (4881) to 1991 (6975). In 1991, 3079 cases of rabies in raccoons were reported, the largest number reported in the history of animal surveillance in the United States. This report summarizes the extension of the epizootic into six additional states since 1989.

Connecticut. The raccoon rabies epizootic was first detected in Connecticut in March 1991, when a rabid raccoon was found in Ridgefield, which borders New York state. As of August 31, 1992, the number of confirmed animal rabies cases associated with the epizootic was 508, compared with 193 in 1991. Of the 1085 raccoons tested in 1992, 456 (42%) were positive for rabies. Rabies has occurred in domestic animals (eight cats, two sheep, and one dog) for the first time since the 1940s. Cases have now been confirmed from 64 of Connecticut's 169 cities. In June 1992, a case of raccoon rabies was confirmed in Scotland, less than 20 miles from the Rhode Island border.

New Jersey. Since the raccoon rabies epizootic was first detected in New Jersey in November 1989, more than 1880 cases of animal rabies have been diagnosed, with 460 cases in 1990, 983 in 1991, and 420 as of July 14, 1992. New Jersey had been free of terrestrial rabies since 1956, when the last case of canine rabies occurred. Most rabies cases since 1989 have occurred in raccoons (1565), followed by skunks (192); cats (57); groundhogs (41); foxes (14); deer (five); domestic rabbits (four); cattle (three); sheep (two); opossums (two); beaver (one); black bear (one); and horse (one). The epizootic currently affects 18 of 21 counties, with only the southernmost counties of the state unaffected.

Raccoon Rabies — Continued

New Hampshire. On April 6, 1992, a raccoon caught in Rumney, New Hampshire, was confirmed infected with the mid-Atlantic strain of the rabies virus by CDC. The raccoon was wearing two flea collars, suggesting it had been a pet. No owner was found, despite door-to-door canvassing in the area. As of August 31, no other rabid raccoons have been identified.

New York. The raccoon rabies epizootic was first detected in New York in the summer of 1990 and now extends on a 350-mile front involving 24 counties of southern New York. Recent cases in the Albany area, 60 miles north of the rabies front, suggest that translocation of raccoons remains a problem. In 1991, 666 raccoons were confirmed rabid with extensive spillover to other wild and domestic species. As of July 31, 1992, 804 (44%) of 1818 raccoons tested for rabies have been confirmed rabid. The number of persons receiving postexposure rabies prophylaxis increased from 84 in 1989 to 197 in 1990 to 965 in 1991. During the first half of 1992, 589 treatments were administered, a 60% increase over the same period in 1991.

North Carolina. In North Carolina, the first rabid raccoon was found on June 18, 1991, in a county bordering Virginia. During 1991 in two northeastern counties, 12 raccoons and one fox were found to be rabid. The epizootic now involves four additional counties. The rabies epizootic entered southern North Carolina in June 1992. Through July 31, five raccoons and four foxes have been confirmed rabid in two neighboring south-central counties adjoining South Carolina, including the Charlotte metropolitan area, representing the first extension of a rabies epizootic into a major population center of North Carolina.

Ohio. On March 4, 1992, the West Virginia State Rabies Laboratory confirmed rabies in a raccoon from Martins Ferry in Belmont County, Ohio. CDC later confirmed the raccoon strain of the rabies virus, the first documented case from Ohio. Martins Ferry borders the Ohio River across from Marshall County, West Virginia, where a dog was found to have the raccoon rabies strain in June 1990. As of June 30, 1992, 15 animals from Belmont County were submitted for rabies testing. Of these, one bat was positive for rabies.

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Editorial Note: Raccoon rabies was probably introduced into the mid-Atlantic region in the mid 1970s when raccoons were transported from raccoon-rabies–enzootic regions of the southeastern United States to the mid-Atlantic area for replenishment of hunting stocks. The first cases occurred in West Virginia (1977), with subsequent spread to Virginia (1978), Maryland (1981), Pennsylvania (1982), Delaware (1987), New Jersey (1989), New York (1990), and Connecticut (1991). Expansion to New England states other than those reported here is expected during the next several years. With the recent identification of raccoon rabies in North Carolina (1991), raccoon rabies is now enzootic from Florida to Connecticut. Isolated reports of cases

Raccoon Rabies — Continued

from Ohio and New Hampshire may indicate further expansion of the geographic limits of the epizootic to the West and North.

Although raccoon rabies has not been responsible for any known human rabies case, the possibility of transmission exists given the presence of large populations of raccoons in areas of high human population density and the ability of raccoons to coexist with humans in urban and suburban areas, as well as in rural areas.

The rabies threat to humans is greatest when epizootics occur in domestic animals, especially dogs. Reduction of the number of human deaths from rabies in the United States has been largely attributed to vaccination of pets and to stray-animal control. These traditional control measures have been effective in breaking the chain of rabies transmission from domestic animals to humans but do not reduce the vast reservoir of rabies infection present in wildlife in the United States.

The use of oral rabies vaccines has shown promise as a tool to curb the spread of wildlife rabies (*1,2*). In the United States, a newly developed vaccinia-rabies glycoprotein (V-RG) recombinant vaccine for the oral vaccination of raccoons is being tested. Field trial studies of vaccine safety conducted in Virginia (1990) and Pennsylvania (1991) showed no detrimental effects on the environment or in nontarget species (*3*). As a result, the U.S. Department of Agriculture (USDA) recently gave permission for an efficacy field test with the vaccine to be conducted in a defined area of New Jersey.

Additional field trials of the oral rabies vaccine for raccoons are needed to establish the appropriate distribution method (e.g., airplane, helicopter, or hand placement), minimum effective geographic area, bait density, frequency, and time(s) of year for vaccination in various habitats. Strategies may vary depending on the reason for an oral-vaccination program (i.e., eliminating rabies, preventing its introduction into an area, or reducing the number of rabid animals in an epizootic area). Until these concerns are addressed, the larger question of whether oral vaccination of wildlife is cost effective cannot be adequately answered.

In addition to threatening the health of humans, domestic animals, and other wildlife, the raccoon rabies epizootic has resulted in severe economic consequences for affected states. A recent study conducted in two counties in New Jersey indicated that private and public expenditures associated with the raccoon rabies epizootic increased from $405,565 per 100,000 population during a preepizootic period to $979,027 per 100,000 population during the epizootic period (*4*). Extrapolated to the entire mid-Atlantic and New England regions, potential costs associated with prevention and control activities during the epizootic period could amount to hundreds of millions of dollars.

A major focus of the public health response to rabies has been education. Education of the public has emphasized ways to reduce the risk of exposure to wild animals in affected areas, the need to keep rabies vaccinations for pet dogs and cats current, and the importance of seeking medical treatment if bitten by or exposed to a potentially rabid animal. Education of veterinarians, animal-control officers, and others in occupations at high-risk for exposure to rabies has emphasized the importance of preexposure prophylaxis against rabies. Education efforts have also targeted physicians and other medical professionals because many physicians in these areas have never given either preexposure or postexposure prophylaxis for rabies.

Raccoon Rabies — Continued

CDC is working with public health veterinarians and state epidemiologists to develop recommendations concerning alternative strategies for rabies control. A meeting is scheduled for early 1993 with state epidemiologists, public health veterinarians, officials from the USDA, and rabies researchers to discuss approaches for controlling raccoon rabies in the United States. Information about rabies is available from state and local health departments and CDC's Viral and Rickettsial Zoonoses Branch, Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases, telephone (404) 639-1075.

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Cholera Associated with International Travel, 1992

Approximately one case of cholera per week is being reported in the United States. Most of these cases have been acquired during international travel and involve persons who return to their homelands to visit family or foreign nationals visiting relatives in the United States. This report summarizes case reports from four states during 1992.

Connecticut

On January 8, the Connecticut Department of Health Services was notified about suspected cholera in two persons. The first, a 43-year-old woman born in Ecuador, traveled with her daughters, aged 13 and 16 years, to Guayaquil, Ecuador, to visit relatives during the Christmas holidays. On January 3, the mother ate raw clams, and the 16-year-old ate cooked shrimp. The following evening, the mother ate cooked crab and lobster, and the 16-year-old ate cooked crab. The 13-year-old ate no seafood during the trip. On January 5, approximately 16 hours after the second meal, the mother had onset of vomiting, cramps, and diarrhea. On January 6, about 48 hours after the second meal and during the return flight to Connecticut, the 16-year-old developed similar symptoms.

Both persons were treated as outpatients at an emergency room in Connecticut with intravenous fluids and oral antimicrobials. Toxigenic *Vibrio cholerae* O1, biotype El Tor, serotype Inaba, was recovered from stool cultures of both persons. In addition, both *Shigella* and *Campylobacter* were isolated from the 16-year-old's stool. The 13-year-old daughter remained well.

Florida

On June 8, the Florida Department of Health and Rehabilitative Services was notified of suspected cholera in a 48-year-old man born in Ecuador. The man and his brother traveled by air on June 4 from Guayaquil, Ecuador, to the United States to visit relatives in Miami. Before leaving Guayaquil, he ate ceviche at the airport restaurant. His brother had a different meal.

Cholera — Continued

On the morning of June 6, the patient awoke with severe diarrhea and was hospitalized in Miami. He recovered and was discharged on the 5th hospital day. Culture of the patient's stool yielded toxigenic *V. cholerae* O1, biotype El Tor, serotype Ogawa. The patient's brother remained well.

Hawaii

On July 30, the Hawaii Department of Health was notified about suspected cholera in a 58-year-old male traveler from the Philippines. On July 28, the man boarded a flight in Manila for Honolulu and Panama, where he was employed. Approximately 90 minutes into the flight, he developed severe diarrhea that continued for the duration of the 10.5-hour flight to Honolulu. No oral rehydration therapy was available on the airliner. Shortly before arrival in Honolulu, he had onset of nausea, vomiting, and dizziness.

On arrival, the patient was met by a CDC quarantine officer and was taken by ambulance to a hospital, where he was admitted to the intensive care unit in hypovolemic shock. A stool culture yielded toxigenic *V. cholerae* O1, biotype El Tor, serotype Ogawa. The patient received intravenous antimicrobials and approximately 10–12 liters of intravenous fluids daily for 5 days. He recovered and was discharged on the 7th hospital day.

Texas

On April 29, the Texas Department of Health was notified of suspected cholera in a 40-year-old Hispanic male resident of Brownsville. On April 27, the man and his brother from Houston traveled by automobile to Tampico, Mexico, to visit their father. That evening, they ate fried shrimp and boiled crab at a restaurant in Tampico. The two men returned to Brownsville on April 28. Shortly after midnight, the man had onset of severe vomiting, diarrhea, and confusion; he was hospitalized at 6 a.m.

The emergency room physician suspected cholera. Motile vibrios were visible on a wet preparation of stool examined by darkfield microscopy, and toxigenic *V. cholerae* O1, biotype El Tor, serotype Inaba, was isolated from a stool sample. The isolate was similar to the Latin American strain by multilocus enzyme testing at CDC.

The man received 13 liters of fluid intravenously during the first day of hospitalization; he recovered and was discharged after 2 days. His brother reported mild diarrhea after the trip. His serum, obtained approximately 2 weeks after his illness, had no detectable vibriocidal antibodies, indicating that he had not had cholera.

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Editorial Note: In 1991, 26 cases of cholera were reported in the United States; 18 were associated with travel to Latin America. Of these, 11 were related to crabs brought back in suitcases (*1*). Although no further domestic cholera cases associated

Cholera — Continued

with souvenir crab have occurred, the number of travel-associated cholera cases is increasing.

Since January 1, 1992, 96 cholera cases have been reported in the United States (with one death), more than in any year since CDC began cholera surveillance in 1961. Of these, 95 were travel-associated. In comparison, from 1961 to 1981, only 10 travel-associated cholera cases were reported (*2*). Of the 96 cases, 75 were associated with an outbreak on board an Aerolineas Argentinas flight between Argentina and Los Angeles (*3*). Of the remaining 21 cases, 14 have been linked with travel between the United States and Latin America and six with travel between the United States and Asia. The source of one patient's infection remains unknown. None of the 20 travel-associated cases occurred on typical tourist itineraries. Twelve of the 14 cases associated with travel to Latin America occurred in U.S. residents who were visiting relatives in Latin America; two occurred in residents of Latin America who were ill in the United States. Similarly, five of the six cases associated with travel to Asia occurred in persons visiting relatives.

Most persons infected with *V. cholerae* O1 have no symptoms, and attempts to prevent the introduction of cholera through restriction of travel have not been successful (*4*). Because immigrants or foreign nationals may not speak English and are unlikely to obtain pretravel medical advice, they may be difficult to reach with cholera-prevention messages. In addition, these persons may be exposed to cholera while staying in the households of relatives in their homelands.

The report of the Filipino traveler illustrates how a cholera strain could be introduced into another part of the world. Infected travelers can easily move from one part of the world affected by cholera to another where sanitary conditions may permit spread of cholera.

Although spread of cholera on an aircraft is unlikely if routine sanitary measures are followed, cabin crew of commercial aircraft traveling to and from areas affected by cholera should be prepared to treat passengers who develop symptoms of cholera. Most persons with cholera can be treated with oral rehydration solution (ORS) which can be kept on board in dehydrated packets. CDC has advised domestic and foreign airlines serving the western hemisphere and the International Air Transport Association to stock ORS and instructions in its use on flights to and from cholera-affected areas. With prompt and appropriate replacement of fluids, dehydration in persons with severe ongoing fluid losses can be prevented. Regardless of treatment en route, any patient suspected of having cholera should seek medical assistance immediately on arrival.

Risk for cholera and traveler's diarrhea can be reduced by following the general rule "boil it, cook it, peel it, or forget it" (*5*). In particular, travelers should not consume 1) unboiled or untreated water and ice made from such water; 2) food and beverages from street vendors; 3) raw or partially cooked fish and shellfish, including ceviche; and 4) uncooked vegetables. Cold seafood salads may be particularly risky. Travelers should eat only foods that are cooked and hot, or fruits they peel themselves. Carbonated bottled water and carbonated soft drinks are usually safe if no ice is added (*6*). Persons planning travel to cholera-affected areas may call the pretravel hotline made available through CDC in English ([404] 332-4559) and Spanish ([404] 330-3132).

Cholera — Continued

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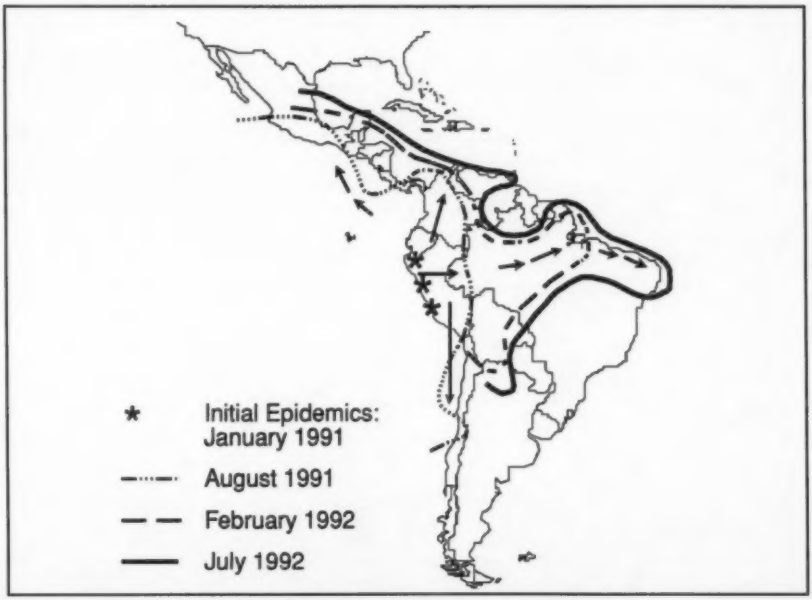
Current Trends

Update: Cholera — Western Hemisphere, 1992

The epidemic of cholera that began in Peru in January 1991 and rapidly spread throughout South and Central America (*1–4*) continues unabated (Figure 1); cholera may persist in some areas of Latin America for years following introduction. Through August 26, 1992, more than 600,000 cases and 5000 deaths have been reported from 20 countries (Table 1). Most recently, cholera has affected Mexico and several

FIGURE 1. Spread of epidemic cholera — Latin America, January 1991–July 1992



Cholera Update — Continued

TABLE 1. Cholera cases reported to the Pan American Health Organization — Western Hemisphere, as of August 26, 1992

Country	1991* Cases	1992 Cases	1992 Deaths
Peru	322,562	162,152	626
Ecuador	46,320	29,431	194
Bolivia	206	19,179	339
Brazil	2,101	15,925	195
Guatemala	3,674	12,365	180
El Salvador	947	6,433	38
Colombia	11,979	2,158	23
Mexico	2,690	1,826	15
Venezuela	13	1,301	35
Panama	1,178	947	14
Argentina	0	451	15
Nicaragua	1	682	5
Honduras	11	222	10
United States	26 (8†)	96 (7†)	1
Chile	41	71	1
French Guyana	1	15	0
Surinam	0	12	1
Costa Rica	0	8	0
Belize	0	12	0
Canada	1 †	0	0
Total	**391,751**	**253,286**	**1,692**

*1991 deaths = 4002.
†Not related to Latin American epidemic.

countries adjacent to the Caribbean. The risk for tourists of acquiring cholera while traveling in affected areas remains low as long as they follow the precautions described for the prevention of travelers' diarrhea (*5*).

Cholera transmission results from consumption of contaminated water and foods (*6,7*). Travelers who develop severe watery diarrhea or diarrhea and vomiting during or within 1 week of travel to an affected area should seek medical attention immediately. Physicians should request that specimens from persons with suspected cholera be cultured on media designed for isolation of *Vibrio cholerae* and should report all suspected cases of cholera to their local and state health departments (*8*).

Reported by: Enteric Diseases Br, Div of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, CDC.

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Cholesterol Screening and Awareness — Behavioral Risk Factor Surveillance System, 1990

The association between high blood cholesterol and coronary heart disease (CHD) has been well documented (*1*), and lowering total and low-density lipoprotein cholesterol levels can reduce the incidence of CHD. For example, a 1% decrease in serum cholesterol can result in a 2% decrease in the risk for CHD (*2*). To reduce the prevalence of high blood cholesterol in the United States, the National Heart, Lung, and Blood Institute initiated the National Cholesterol Education Program (NCEP) in 1985 (*3*) to encourage all adults to have their cholesterol levels checked at least once every 5 years, know their cholesterol levels, and if it is elevated, take steps to lower their levels. This report summarizes data on the proportion of adults who have been screened and report knowing their cholesterol levels.

Data from the 44 states and the District of Columbia, which participated in CDC's Behavioral Risk Factor Surveillance System (BRFSS) during 1990, were analyzed. The BRFSS is a random-digit–dialed monthly telephone survey of persons aged ≥18 years (*4*). Respondents were asked whether they had ever had their cholesterol levels checked and, if so, whether they were told their cholesterol levels. Persons who reported having been told their levels were asked to state their levels; respondents who reported a level from 100 mg/dL through 450 mg/dL were considered to know their levels.

The results were weighted to account for the age, race, and sex distribution of each state population, and to allow for comparisons between states, the results were standardized for age, race, sex, and educational attainment, using the 1980 U.S. census population. SESUDAAN was used to calculate the confidence intervals for the standardized and unstandardized prevalence estimates (*5*).

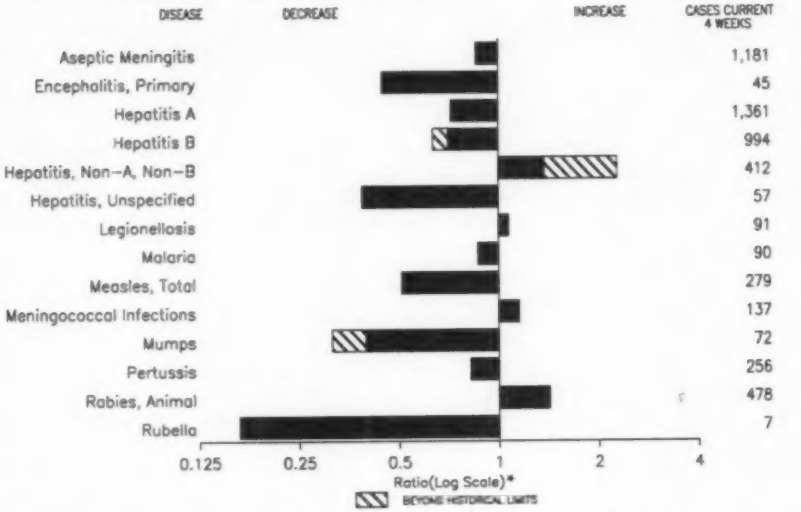
In 1990, the percentage of adults who reported having had their cholesterol checked ranged from 48% in the District of Columbia to 70% in Rhode Island (median: 63%) (Table 1, page 675). The percentage of adults who had been told their cholesterol levels ranged from 29% in the District of Columbia to 58% in Washington and New Hampshire (median: 48%), and those who knew their levels ranged from 12% in the District of Columbia to 37% in Rhode Island and New Hampshire (median: 29%).

After standardizing for age, race, sex, and educational attainment, persons residing in the northeast, north-central, and northwest United States were more likely to know their cholesterol levels, and those in the southeast and the Ohio River Valley were less likely to know their levels (Figure 1, page 676). Minority groups, the young (i.e., 18–34 years), and the less educated were less likely to have been screened, to have been told their cholesterol levels, or to know their levels (Table 2, page 677). Persons who were overweight, hypertensive, or diabetic were more likely to have been screened or to know their levels; persons who were sedentary or smokers were less likely.

Reported by the following state BRFSS coordinators: L Eldridge, Alabama; J Contreras, Arizona; L Lund, California; M Leff, Colorado; M Adams, Connecticut; F Breukelman, Delaware; C Mitchell, District of Columbia; D McTague, Florida; JD Smith, Georgia; VF Ah Cook, Hawaii; J Mitten, Idaho; B Steiner, Illinois; R Guest, Indiana; S Schoon, Iowa; K Bramblett, Kentucky; S Kirkconnell, Louisiana; J Sheridan, Maine; A Weinstein, Maryland; R Lederman, Massachusetts; H McGee, Michigan; N Salem, Minnesota; E Jones, Mississippi; J Jackson-

(Continued on page 675)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending September 5, 1992, with historical data — United States



*Ratio of current 4-week total to the mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending September 5, 1992 (36th Week)

	Cum. 1992		Cum. 1992
AIDS*	31,455	Measles: imported	106
Anthrax	1	indigenous	1,851
Botulism: Foodborne	13	Plague	7
Infant	35	Poliomyelitis, Paralytic†	-
Other	2	Psittacosis	57
Brucellosis	53	Rabies, human	-
Cholera	95	Syphilis, primary & secondary	23,384
Congenital rubella syndrome	8	Syphilis, congenital, age < 1 year§	697
Diphtheria	4	Tetanus	16
Encephalitis, post-infectious	92	Toxic shock syndrome	168
Gonorrhea	334,283	Trichinosis	19
Haemophilus influenzae (invasive disease)	972	Tuberculosis	15,230
Hansen Disease	118	Tularemia	111
Leptospirosis	21	Typhoid fever	248
Lyme Disease	4,999	Typhus fever, tickborne (RMSF)	315

*Updated monthly; last update September 8, 1992.
†Two cases of suspected poliomyelitis have been reported in 1992; six of the nine suspected cases with onset in 1991 were confirmed and 5 of the 8 suspected cases with onset in 1990 were confirmed, and all were vaccine associated.
§Updates for first quarter 1992.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending September 5, 1992, and September 7, 1991 (36th Week)

Reporting Area	AIDS*	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992
UNITED STATES	31,455	5,560	398	92	334,283	409,123	13,580	10,786	4,903	478	873	4,999
NEW ENGLAND	1,017	218	20	-	7,163	9,812	401	399	69	17	45	1,250
Maine	35	23	2	-	57	115	27	19	5	-	2	4
N.H.	32	10	2	-	91	154	28	28	20	1	4	31
Vt.	21	11	3	-	18	40	7	10	9	-	2	3
Mass.	550	102	10	-	2,594	4,312	194	311	29	16	27	150
R.I.	67	72	3	-	500	799	99	18	6	-	10	199
Conn.	312	-	-	-	3,903	4,392	46	13	-	-	-	863
MID. ATLANTIC	8,345	517	17	8	36,004	48,779	1,040	1,388	246	17	240	2,749
Upstate N.Y.	1,060	256	-	-	7,107	8,433	241	342	149	8	93	1,728
N.Y. City	4,884	96	4	1	12,143	19,043	436	266	4	-	3	9
N.J.	1,543	-	-	-	5,167	8,042	164	351	67	-	27	427
Pa.	858	165	13	7	11,587	13,261	199	429	26	9	117	585
E.N. CENTRAL	2,775	799	108	27	63,546	76,246	1,913	1,623	911	26	218	97
Ohio	518	232	32	2	18,603	23,263	294	154	64	4	95	40
Ind.	267	120	10	11	6,032	7,592	578	555	431	9	28	29
Ill.	1,301	169	42	6	21,636	23,083	381	188	59	4	14	6
Mich.	540	265	22	8	14,632	15,899	97	424	302	9	54	22
Wis.	149	13	2	-	2,643	5,409	563	302	55	-	27	-
W.N. CENTRAL	880	297	23	6	15,145	20,125	1,615	450	186	27	52	199
Minn.	161	30	5	-	1,895	2,076	475	51	13	2	4	89
Iowa	66	39	-	3	1,063	1,353	30	25	5	3	14	14
Mo.	446	140	8	-	8,498	12,349	611	304	146	20	18	71
N. Dak.	8	1	2	-	46	52	80	1	3	1	2	1
S. Dak.	7	8	-	1	120	239	192	4	-	-	-	1
Nebr.	40	11	3	2	8	1,288	119	17	7	1	12	10
Kans.	152	68	5	-	3,515	2,788	108	48	12	-	2	13
S. ATLANTIC	7,268	980	80	38	102,177	121,904	853	1,778	694	81	126	389
Del.	95	36	6	-	1,227	1,895	35	161	143	1	20	145
Md.	824	115	11	-	10,723	12,522	156	278	28	5	23	93
D.C.	486	17	1	-	4,381	6,586	13	57	258	-	7	2
Va.	433	158	24	10	11,020	12,116	76	138	27	30	11	80
W. Va.	42	16	14	-	620	846	6	41	1	21	-	7
N.C.	482	127	20	-	17,049	24,468	72	297	63	-	24	39
S.C.	257	16	-	-	7,692	9,915	19	39	-	1	16	1
Ga.	928	113	2	-	30,516	28,742	116	200	75	-	6	2
Fla.	3,721	382	2	28	18,947	24,814	360	567	99	23	19	20
E.S. CENTRAL	1,007	305	18	-	33,026	40,522	201	896	1,416	2	49	50
Ky.	152	107	10	-	3,336	4,134	56	64	3	-	21	18
Tenn.	321	62	4	-	9,955	14,347	88	735	1,401	-	22	24
Ala.	357	83	3	-	11,643	12,170	33	93	11	1	6	8
Miss.	177	53	1	-	8,092	9,871	24	4	1	1	-	-
W.S. CENTRAL	2,897	751	43	5	37,744	46,297	1,393	1,375	89	110	15	90
Ark.	151	8	7	-	5,034	5,586	79	54	7	4	-	10
La.	541	43	5	1	10,582	10,400	160	126	43	2	2	5
Okla.	189	-	3	2	3,745	4,826	141	148	21	3	8	22
Tex.	2,016	700	28	2	18,383	25,485	1,013	1,047	18	101	5	53
MOUNTAIN	880	187	19	4	8,349	8,576	2,001	507	188	39	67	11
Mont.	14	4	1	1	75	71	64	26	26	-	9	-
Idaho	22	21	-	-	75	103	51	63	-	1	4	2
Wyo.	2	1	1	-	38	58	7	5	20	-	1	1
Colo.	293	62	7	1	2,971	2,462	576	80	70	20	12	-
N. Mex.	68	14	3	1	639	740	209	145	18	7	2	2
Ariz.	284	54	4	-	2,923	3,159	790	112	21	6	24	-
Utah	54	5	3	1	225	216	243	10	20	5	1	6
Nev.	143	26	-	-	1,403	1,759	61	66	13	-	14	-
PACIFIC	6,386	1,506	70	4	31,129	36,862	4,163	2,370	1,104	159	61	164
Wash.	390	-	1	-	2,542	3,125	540	256	108	7	8	10
Oreg.	166	-	-	-	1,183	1,391	270	198	52	8	-	-
Calif.	5,725	1,434	65	3	26,531	31,257	3,176	1,891	772	136	52	153
Alaska	11	11	4	-	493	571	38	12	2	1	-	-
Hawaii	94	61	-	1	380	518	139	13	170	7	1	1
Guam	-	2	-	-	48	12	5	1	-	6	-	1
P.R.	878	126	1	-	163	412	34	306	146	17	1	-
V.I.	2	-	-	-	70	280	2	6	-	-	-	-
Amer. Samoa	-	-	-	-	31	34	1	1	-	-	-	-
C.N.M.I.	-	-	-	-	61	48	1	-	-	-	-	-

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands
*Updated monthly; last update September 8, 1992.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 5, 1992, and September 7, 1991 (36th Week)

Reporting Area	Malaria	Measles (Rubeola)					Meningococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1992	1992	Cum. 1992	1992	Cum. 1992	Cum. 1991	Cum. 1992	1992	Cum. 1992	1992	Cum. 1992	Cum. 1991	1992	Cum. 1992	Cum. 1991
UNITED STATES	637	77	1,851	-	106	8,563	1,581	11	1,842	98	1,462	1,758	-	136	1,123
NEW ENGLAND	36	-	51	-	8	71	94	-	14	20	144	229	-	6	4
Maine	1	-	2	-	1	2	8	-	-	-	7	49	-	1	-
N.H.	3	-	15	-	-	-	5	-	3	-	29	17	-	-	1
Vt.	-	-	-	-	-	5	4	-	1	1	6	4	-	-	-
Mass.	20	-	11	-	3	35	40	-	2	17	70	134	-	-	2
R.I.	5	-	23	-	-	2	2	-	-	-	-	-	-	4	-
Conn.	7	-	-	-	4	27	35	-	8	2	32	25	-	1	1
MID. ATLANTIC	186	-	173	-	13	4,591	173	2	116	19	119	175	-	16	563
Upstate N.Y.	26	-	81	-	4	399	85	1	54	2	37	93	-	11	537
N.Y. City	94	-	42	-	8	1,710	15	-	12	-	9	20	-	-	2
N.J.	24	-	45	-	1	1,023	25	-	9	-	16	14	-	2	2
Pa.	22	-	5	-	-	1,459	48	1	41	17	57	48	-	3	22
E.N. CENTRAL	43	-	28	-	14	82	235	2	247	5	138	351	-	8	183
Ohio	8	-	-	-	6	3	60	2	99	5	50	80	-	-	147
Ind.	11	-	20	-	-	3	36	-	8	-	21	63	-	-	3
Ill.	10	-	6	-	4	26	62	-	79	-	17	65	-	8	7
Mich.	11	-	2	-	2	41	58	-	61	-	8	32	-	-	25
Wis.	3	-	-	-	2	9	19	-	9	-	42	111	-	-	1
W.N. CENTRAL	33	-	6	-	8	51	67	1	61	9	140	132	-	7	17
Minn.	15	-	5	-	5	20	9	-	19	-	32	51	-	-	6
Iowa	2	-	-	-	3	16	7	-	10	-	3	14	-	3	6
Mo.	10	-	-	-	-	1	21	1	24	3	60	47	-	-	5
N. Dak.	1	-	-	-	-	-	1	-	2	-	12	3	-	-	-
S. Dak.	1	-	-	-	-	-	1	-	-	-	7	3	-	-	-
Nebr.	-	-	-	-	-	1	14	-	4	-	10	8	-	-	-
Kans.	4	-	1	-	-	13	14	-	2	6	16	6	-	4	-
S. ATLANTIC	124	-	120	-	11	459	330	1	708	4	119	183	-	15	8
Del.	5	-	3	-	-	21	2	-	5	-	6	-	-	-	-
Md.	35	-	9	-	7	174	27	1	62	3	21	46	-	6	1
D.C.	8	-	-	-	-	-	3	-	5	-	1	-	-	1	1
Va.	27	-	10	-	4	29	47	-	46	-	10	18	-	-	-
W. Va.	2	-	-	-	-	-	15	-	22	-	7	9	-	1	-
N.C.	8	-	25	-	-	43	102	-	181	-	21	28	-	-	2
S.C.	-	-	29	-	-	13	21	-	49	-	11	10	-	2	-
Ga.	5	-	-	-	-	15	44	-	70	-	14	34	-	-	-
Fla.	34	-	44	-	-	164	69	-	268	1	28	38	-	5	4
E.S. CENTRAL	15	-	445	-	18	4	101	-	45	2	24	62	-	1	100
Ky.	1	-	444	-	2	1	30	-	-	-	1	-	-	-	-
Tenn.	10	-	-	-	-	3	30	-	14	1	6	25	-	1	100
Ala.	4	-	-	-	-	-	30	-	10	1	14	33	-	-	-
Miss.	-	-	1	-	16	-	11	-	21	-	3	4	-	-	-
W.S. CENTRAL	22	75	909	-	1	182	119	1	310	2	47	54	-	-	6
Ark.	1	-	-	-	-	5	10	-	6	1	13	6	-	-	1
La.	1	-	-	-	-	-	25	1	20	1	7	12	-	-	-
Okla.	5	-	11	-	-	-	13	-	16	-	27	23	-	-	-
Tex.	15	75	898	-	1	177	71	-	268	-	-	13	-	-	5
MOUNTAIN	23	1	17	-	8	1,040	78	1	109	18	264	182	-	8	15
Mont.	-	-	-	-	-	-	15	-	2	1	4	2	-	-	-
Idaho	1	-	-	-	-	413	8	-	3	-	37	23	-	1	-
Wyo.	-	-	1	-	-	3	2	-	-	-	-	3	-	-	-
Colo.	5	1	13	-	7	6	13	1	17	-	26	96	-	1	2
N. Mex.	4	-	1	-	1	98	8	N	N	3	59	24	-	-	1
Ariz.	8	-	2	-	-	312	19	-	60	14	108	8	-	2	2
Utah	4	-	-	-	-	189	4	-	19	-	28	24	-	2	6
Nev.	1	-	-	-	-	19	9	-	8	-	2	2	-	2	4
PACIFIC	175	1	102	-	25	2,083	384	3	232	19	467	390	-	75	227
Wash.	12	-	-	-	10	61	62	-	9	14	150	99	-	6	8
Oreg.	11	-	4	-	1	78	53	N	N	5	29	53	-	3	3
Calif.	144	-	56	-	3	1,916	257	3	204	-	267	184	-	44	206
Alaska	1	-	8	-	1	3	7	-	1	-	5	12	-	-	1
Hawaii	7	1	34	-	10	25	5	-	18	-	16	42	-	22	9
Guam	1	U	10	U	-	-	-	U	8	U	-	-	U	1	-
P.R.	-	-	339	-	-	94	3	-	1	1	11	45	-	-	1
V.I.	-	U	-	U	-	2	-	U	17	U	-	-	U	-	-
Amer. Samoa	-	-	-	-	-	24	-	-	-	-	6	-	-	-	-
C.N.M.I.	-	U	1	U	1	-	-	U	-	U	1	-	U	-	-

*For measles only, imported cases include both out-of-state and international importations.
N: Not notifiable U: Unavailable †International §Out-of-state

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 5, 1992, and September 7, 1991 (36th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992
UNITED STATES	23,384	29,212	168	15,230	15,283	111	248	315	5,528
NEW ENGLAND	476	740	11	326	428	1	24	7	541
Maine	2	1	1	18	30	-	-	-	-
N.H.	38	12	6	14	5	-	1	-	5
Vt.	1	1	-	4	4	-	-	-	20
Mass.	235	353	3	158	202	1	15	3	9
R.I.	23	39	1	34	65	-	-	2	-
Conn.	177	334	-	98	122	-	8	2	507
MID. ATLANTIC	3,394	5,050	19	3,523	3,584	-	63	24	1,691
Upstate N.Y.	235	473	8	251	335	-	7	9	946
N.Y. City	1,827	2,511	-	2,198	2,171	-	25	3	8
N.J.	426	879	-	642	583	-	21	4	526
Pa.	906	1,187	11	432	495	-	10	8	211
E.N. CENTRAL	3,563	3,470	44	1,523	1,566	1	31	23	104
Ohio	549	461	14	234	232	-	5	13	11
Ind.	207	124	10	117	150	-	1	4	12
Ill.	1,641	1,602	5	760	827	1	21	2	20
Mich.	688	881	15	352	290	-	2	1	9
Wis.	468	402	-	60	67	-	2	3	52
W.N. CENTRAL	893	497	29	354	357	49	5	23	861
Minn.	61	47	6	97	68	-	2	-	140
Iowa	34	48	5	25	52	-	1	-	140
Mo.	678	354	6	162	151	34	1	18	13
N. Dak.	1	1	2	2	6	-	-	-	120
S. Dak.	-	1	-	18	26	11	-	1	102
Nebr.	1	11	3	16	14	2	1	-	9
Kans.	118	35	7	34	40	2	-	4	337
S. ATLANTIC	6,457	8,620	19	2,780	2,866	4	19	93	1,215
Del.	152	114	3	36	21	-	-	8	142
Md.	465	687	2	233	266	1	4	14	368
D.C.	298	539	-	84	126	-	1	1	13
Va.	475	664	2	169	226	2	1	12	222
W. Va.	14	21	1	69	47	-	1	5	30
N.C.	1,712	1,357	3	364	378	1	-	38	27
S.C.	886	1,080	1	289	286	-	1	6	118
Ga.	1,283	2,125	3	608	573	-	-	6	254
Fla.	1,172	2,033	4	928	943	-	11	3	41
E.S. CENTRAL	2,922	3,214	1	1,001	991	5	3	60	139
Ky.	102	66	-	273	241	1	-	6	54
Tenn.	764	1,046	1	284	257	4	-	51	29
Ala.	1,056	1,234	-	275	279	-	-	3	55
Miss.	1,000	868	-	169	214	-	3	-	1
W.S. CENTRAL	4,329	5,168	2	1,788	1,836	25	7	73	537
Ark.	559	478	-	137	163	17	-	10	30
La.	1,755	1,745	-	139	165	-	1	-	6
Okla.	242	137	1	110	119	8	-	63	257
Tex.	1,773	2,808	1	1,402	1,389	-	6	-	244
MOUNTAIN	252	419	15	393	425	21	2	7	119
Mont.	7	6	1	-	6	12	-	3	15
Idaho	1	3	1	16	4	-	1	1	-
Wyo.	3	8	-	-	3	1	-	1	23
Colo.	35	60	5	30	46	4	1	-	15
N. Mex.	29	24	2	57	55	4	-	1	6
Ariz.	129	265	2	192	227	-	-	-	53
Utah	7	6	4	56	39	-	-	1	2
Nev.	41	47	-	42	45	-	-	-	5
PACIFIC	1,108	2,034	28	3,542	3,240	5	94	5	321
Wash.	58	130	-	209	197	2	6	-	-
Oreg.	30	53	1	89	77	-	-	2	2
Calif.	1,008	1,843	27	3,034	2,773	1	83	3	306
Alaska	5	4	-	39	52	2	-	-	13
Hawaii	7	4	-	171	141	-	5	-	-
Guam	2	1	-	34	6	-	3	-	-
P.R.	228	310	-	135	167	-	1	-	31
V.I.	48	78	-	3	2	-	-	-	-
Amer. Samoa	-	-	-	-	2	-	1	-	-
C.N.M.I.	5	3	-	43	10	-	1	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending September 5, 1992 (36th Week)

Reporting Area	All Causes, By Age (Years)						P&I†	Reporting Area	All Causes, By Age (Years)						P&I†
	All Ages	>65	45-64	25-44	1-24	<1	Total		All Ages	>65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	565	387	103	44	16	15	42	S. ATLANTIC	958	579	209	97	34	39	49
Boston, Mass.	163	99	32	18	6	8	23	Atlanta, Ga.	144	73	30	26	7	8	2
Bridgeport, Conn.	37	21	10	5	1	-	-	Baltimore, Md.	218	128	43	31	9	7	21
Cambridge, Mass.	15	12	3	-	-	-	-	Charlotte, N.C.	96	50	30	7	3	6	5
Fall River, Mass.	29	25	2	1	-	1	2	Jacksonville, Fla.	101	63	21	9	3	5	3
Hartford, Conn.	58	42	10	4	2	-	3	Miami, Fla.	U	U	U	U	U	U	U
Lowell, Mass.	15	11	4	-	-	-	-	Norfolk, Va.	52	34	12	3	1	2	2
Lynn, Mass.	9	8	-	1	-	-	1	Richmond, Va.	76	47	16	6	6	1	1
New Bedford, Mass.	22	19	1	2	-	-	3	Savannah, Ga.	49	32	11	1	3	2	4
New Haven, Conn.	44	27	10	3	1	3	1	St. Petersburg, Fla.	54	37	10	2	-	5	-
Providence, R.I.	47	32	9	3	2	1	-	Tampa, Fla.	149	100	32	12	2	3	11
Somerville, Mass.	2	2	-	-	-	-	-	Washington, D.C.	U	U	U	U	U	U	U
Springfield, Mass.	40	24	10	3	2	1	1	Wilmington, Del.	19	15	4	-	-	-	-
Waterbury, Conn.	25	18	6	-	1	-	1								
Worcester, Mass.	59	47	6	4	1	1	7	E.S. CENTRAL	640	422	137	43	23	15	27
								Birmingham, Ala.	83	49	18	7	5	4	-
MID. ATLANTIC	2,429	1,595	446	267	60	61	110	Chattanooga, Tenn.	41	29	8	3	-	1	3
Albany, N.Y.	40	31	5	3	1	-	3	Knoxville, Tenn.	104	69	23	8	2	2	3
Allentown, Pa.	22	14	4	4	-	-	2	Lexington, Ky.	75	60	8	3	2	2	6
Buffalo, N.Y.	100	81	14	3	-	2	3	Memphis, Tenn.	122	76	29	8	5	4	5
Camden, N.J.	27	19	4	2	1	1	5	Mobile, Ala.	51	35	9	3	3	1	2
Elizabeth, N.J.	26	23	1	2	-	-	-	Montgomery, Ala.	37	21	11	3	2	-	1
Erie, Pa.§	34	28	3	3	-	-	-	Nashville, Tenn.	127	83	31	8	4	1	7
Jersey City, N.J.	55	30	11	11	1	2	-								
New York City, N.Y.	1,216	760	233	158	34	31	38	W.S. CENTRAL	717	458	137	73	26	23	24
Newark, N.J.	86	30	25	17	10	4	6	Austin, Tex.	58	39	9	6	3	1	5
Paterson, N.J.	24	12	7	4	-	1	2	Baton Rouge, La.	48	37	6	5	-	-	2
Philadelphia, Pa.	398	279	75	26	7	11	23	Corpus Christi, Tex.	U	U	U	U	U	U	U
Pittsburgh, Pa.§	55	37	9	7	2	-	4	Dallas, Tex.	190	123	34	19	10	4	2
Reading, Pa.	21	13	5	3	-	-	2	El Paso, Tex.	66	43	17	5	-	1	2
Rochester, N.Y.	115	84	15	9	3	4	12	Ft. Worth, Tex.	123	84	20	13	2	4	5
Schenectady, N.Y.	25	19	3	3	-	-	-	Houston, Tex.	U	U	U	U	U	U	U
Scranton, Pa.§	31	26	5	-	-	-	1	Little Rock, Ark.	72	38	21	7	2	4	5
Syracuse, N.Y.	69	48	12	5	-	4	5	New Orleans, La.	62	32	11	6	4	9	-
Trenton, N.J.	30	24	4	2	-	-	3	San Antonio, Tex.	U	U	U	U	U	U	U
Utica, N.Y.	23	16	4	1	1	1	1	Shreveport, La.	23	14	6	1	2	-	-
Yonkers, N.Y.	32	21	7	4	-	-	-	Tulsa, Okla.	75	48	13	11	3	-	3
E.N. CENTRAL	2,218	1,315	426	259	154	64	93	MOUNTAIN	737	481	136	75	15	30	54
Akron, Ohio	63	49	10	-	4	-	2	Albuquerque, N.M.	78	58	9	6	1	4	4
Canton, Ohio	22	15	6	-	-	1	9	Colo. Springs, Colo.	49	30	12	4	2	1	6
Chicago, Ill.	602	217	133	130	100	22	8	Denver, Colo.	126	76	27	16	2	5	5
Cincinnati, Ohio	116	69	25	13	5	4	13	Las Vegas, Nev.	97	66	20	9	1	1	6
Cleveland, Ohio	153	102	32	13	3	3	1	Ogden, Utah	27	24	3	-	-	-	3
Columbus, Ohio	176	118	31	19	4	4	2	Phoenix, Ariz.	143	85	23	19	4	12	12
Dayton, Ohio	110	83	19	4	4	-	9	Pueblo, Colo.	19	17	2	-	-	-	3
Detroit, Mich.	212	130	35	29	11	7	3	Salt Lake City, Utah	96	58	20	10	3	5	12
Evansville, Ind.	50	33	14	2	1	-	1	Tucson, Ariz.	102	67	20	11	2	2	3
Fort Wayne, Ind.	62	41	17	2	-	2	4	PACIFIC	2,161	1,386	393	251	72	53	122
Gary, Ind.	23	11	6	2	1	3	1	Berkeley, Calif.	16	12	4	-	-	-	2
Grand Rapids, Mich.	54	38	12	2	1	1	6	Fresno, Calif.	56	22	13	10	3	8	1
Indianapolis, Ind.	152	98	22	15	8	9	7	Glendale, Calif.	20	11	8	1	-	-	-
Madison, Wis.	33	25	4	2	2	-	4	Honolulu, Hawaii	67	41	13	10	2	1	6
Milwaukee, Wis.	127	83	27	11	3	3	2	Long Beach, Calif.	73	52	10	5	3	3	7
Peoria, Ill.	41	34	4	2	-	1	4	Los Angeles, Calif.	878	558	159	113	36	9	42
Rockford, Ill.	42	31	5	1	3	2	2	Pasadena, Calif.	22	15	2	4	1	-	1
South Bend, Ind.	30	24	2	1	2	1	3	Portland, Oreg.	125	87	21	11	2	4	5
Toledo, Ohio	101	76	17	6	1	1	10	Sacramento, Calif.	156	98	28	15	4	11	12
Youngstown, Ohio	49	38	5	5	1	-	2	San Diego, Calif.	149	91	24	22	2	8	18
								San Francisco, Calif.	152	83	37	26	3	2	-
W.N. CENTRAL	768	549	111	68	19	21	43	San Jose, Calif.	151	108	24	11	6	2	16
Des Moines, Iowa	78	55	17	4	1	1	6	Santa Cruz, Calif.	29	21	6	2	-	-	3
Duluth, Minn.	33	22	5	3	1	2	-	Seattle, Wash.	148	102	27	11	5	3	4
Kansas City, Kans.	26	20	5	1	-	-	3	Spokane, Wash.	47	37	4	4	1	1	4
Kansas City, Mo.	119	90	12	10	4	3	8	Tacoma, Wash.	72	48	13	6	4	1	1
Lincoln, Nebr.	33	26	2	4	-	1	-								
Minneapolis, Minn.	184	132	29	16	4	3	11	TOTAL	11,193¶	7,172	2,098	1,177	419	321	564
Omaha, Nebr.	95	74	9	8	1	3	6								
St. Louis, Mo.	115	72	20	15	3	5	4								
St. Paul, Minn.	48	33	6	4	3	2	3								
Wichita, Kans.	37	25	6	3	2	1	2								

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.
†Pneumonia and influenza.
§Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.
¶Total includes unknown ages.
U: Unavailable

Cholesterol — Continued

TABLE 1. Percentage of adult respondents who had had their cholesterol checked, had been told their cholesterol levels, and knew their cholesterol levels, by state — Behavioral Risk Factor Surveillance System, 1990

State	Sample size	Respondents who had had their cholesterol checked		Respondents who had been told their cholesterol levels		Respondents who knew their cholesterol levels		Respondents who knew their cholesterol levels (standardized)*	
		%	(95% CI†)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Alabama	2125	56	(±2.4)	41	(±2.3)	20	(±1.9)	20	(±1.8)
Arizona	1460	61	(±2.9)	49	(±3.0)	27	(±2.5)	24	(±2.8)
Calififorinia	2504	61	(±2.3)	48	(±2.3)	27	(±2.0)	24	(±2.4)
Colorado	1687	63	(±2.8)	51	(±2.8)	29	(±2.5)	25	(±2.6)
Connecticut	1831	69	(±2.4)	55	(±2.6)	33	(±2.4)	28	(±2.5)
Delaware	1479	62	(±2.7)	50	(±2.9)	28	(±2.6)	25	(±2.5)
District of Columbia	1447	48	(±3.1)	29	(±2.8)	12	(±2.0)	15	(±5.2)
Florida	2109	66	(±2.4)	48	(±2.6)	27	(±2.2)	23	(±2.1)
Georgia	1782	60	(±2.5)	43	(±2.6)	22	(±2.0)	21	(±2.1)
Hawaii	1039	56	(±3.6)	42	(±3.4)	26	(±3.0)	26	(±4.0)
Idaho	1761	57	(±2.6)	44	(±2.6)	24	(±2.2)	22	(±2.3)
Illinois	1768	56	(±2.9)	39	(±2.8)	22	(±2.3)	23	(±2.8)
Indiana	2388	58	(±2.2)	42	(±2.2)	25	(±1.9)	23	(±1.8)
Iowa	1499	65	(±2.7)	52	(±2.9)	29	(±2.5)	25	(±2.5)
Kentucky	1788	55	(±2.7)	40	(±2.6)	24	(±2.2)	23	(±2.0)
Louisiana	822	60	(±3.9)	44	(±3.9)	26	(±3.5)	25	(±3.2)
Maine	1249	67	(±3.0)	53	(±3.4)	33	(±3.0)	30	(±2.7)
Maryland	1629	68	(±2.6)	54	(±2.9)	27	(±2.4)	24	(±2.6)
Massachusetts	1267	66	(±2.9)	53	(±3.2)	35	(±3.0)	30	(±2.9)
Michigan	2349	64	(±2.2)	51	(±2.3)	30	(±2.0)	26	(±2.0)
Minnesota	3351	65	(±1.8)	55	(±1.9)	32	(±1.8)	28	(±1.8)
Mississippi	1570	52	(±2.9)	39	(±2.8)	19	(±2.0)	20	(±2.2)
Missouri	1488	61	(±2.9)	47	(±3.0)	26	(±2.5)	23	(±2.3)
Montana	1155	60	(±3.2)	50	(±3.1)	28	(±2.7)	23	(±2.6)
Nebraska	1598	59	(±2.8)	49	(±2.8)	29	(±2.4)	24	(±2.3)
New Hampshire	1483	69	(±2.6)	58	(±2.8)	37	(±2.7)	33	(±2.9)
New Mexico	1151	54	(±3.3)	38	(±3.2)	21	(±2.6)	19	(±2.9)
New York	1355	64	(±3.0)	46	(±3.1)	28	(±2.7)	24	(±2.9)
North Carolina	2102	65	(±2.4)	45	(±2.4)	27	(±2.1)	26	(±2.0)
North Dakota	1594	64	(±2.7)	54	(±2.8)	32	(±2.4)	30	(±2.6)
Ohio	1308	57	(±3.1)	40	(±3.1)	25	(±2.8)	21	(±2.4)
Oklahoma	1323	65	(±2.9)	49	(±3.0)	29	(±2.6)	25	(±2.5)
Oregon	3221	64	(±1.9)	53	(±1.9)	32	(±1.7)	28	(±1.9)
Pennsylvania	2438	62	(±2.2)	48	(±2.2)	29	(±2.0)	25	(±1.9)
Rhode Island	1770	70	(±2.4)	56	(±2.7)	37	(±2.5)	31	(±2.5)
South Carolina	2209	62	(±2.4)	49	(±2.6)	25	(±2.0)	25	(±2.1)
South Dakota	1750	60	(±2.8)	48	(±2.8)	29	(±2.3)	26	(±2.3)
Tennessee	2680	63	(±2.0)	41	(±2.1)	23	(±1.8)	22	(±1.7)
Texas	1465	59	(±2.9)	45	(±3.0)	25	(±2.5)	27	(±2.9)
Utah	1756	57	(±2.7)	46	(±2.6)	28	(±2.3)	23	(±2.3)
Vermont	1103	63	(±3.4)	53	(±3.5)	35	(±3.2)	32	(±3.7)
Virginia	1713	66	(±2.7)	47	(±2.8)	27	(±2.4)	25	(±2.5)
Washington	2005	66	(±2.4)	58	(±2.5)	33	(±2.3)	27	(±2.4)
West Virginia	2355	60	(±2.3)	39	(±2.3)	25	(±1.9)	23	(±1.8)
Wisconsin	1244	63	(±2.9)	52	(±3.1)	33	(±2.9)	30	(±2.9)
Median		**63%**		**48%**		**29%**		**25%**	
Range		*48–70%*		*29–58%*		*12–37%*		*15–33%*	

*Standardized for age, sex, race, and educational attainment using 1980 U.S. census data. Standardized data not available for Hispanics or Asians/Pacific Islanders.

†Confidence interval.

Cholesterol — Continued

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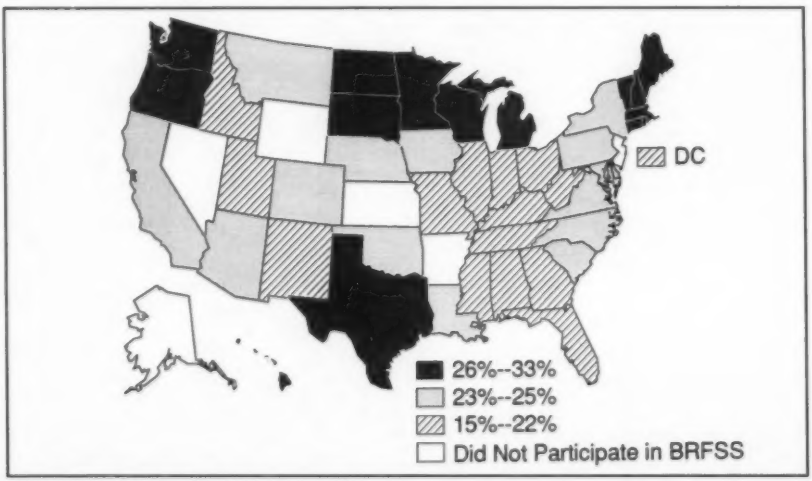
Editorial Note: Risk for CHD increases as serum cholesterol levels increase; persons whose cholesterol levels measure in the highest 10% for the U.S. population have approximately a fourfold greater risk for dying from CHD than persons with levels in the lowest 10% (*6*). Based on current NCEP guidelines, approximately 36% of U.S. adults need treatment for high blood cholesterol (*7*), and findings in this report indicate a need for increased cholesterol screening and awareness. Cholesterol awareness is a multistep process that requires 1) screening, 2) being told a level, and 3) remembering that level. Of all respondents, 63% reported being screened; of those screened, 76% reported being told their levels; and of those told their levels, 60% knew their levels. Although these findings suggest some success in each step, cholesterol awareness requires success in all three steps combined. Because persons may know their cholesterol levels does not necessarily indicate they will take actions to reduce their cholesterol levels; however, it is an important step in the process of cholesterol reduction. Persons who are aware of their cholesterol levels are more likely to initiate steps to reduce their blood cholesterol levels (*8*).

Factors that may be associated with variations in cholesterol screening and awareness by state include differences in 1) perceptions (among both health-care providers and the public) about the risk for CHD and about the effectiveness of

FIGURE 1. Percentage of adults who know their cholesterol levels,* by state — Behavioral Risk Factor Surveillance System (BRFSS), 1990



*Standardized to the 1980 U.S. population.

Cholesterol — Continued

TABLE 2. Percentage of adult respondents who had had their cholesterol checked, had been told their cholesterol levels, and knew their cholesterol levels, by socio-demographic characteristics and cardiovascular risk factors — Behavioral Risk Factor Surveillance System, 1990

Characteristic	Sample size	Respondents who had had their cholesterol checked %	(95% CI†)	Respondents who had been told their cholesterol levels %	(95% CI)	Respondents who knew their cholesterol levels %	(95% CI)	Respondents who knew their cholesterol levels (standardized)* %	(95% CI)
Sex									
Male	33,436	59	(±0.9)	44	(±0.9)	26	(±0.7)	23	(±0.7)
Female	45,734	65	(±0.7)	48	(±0.8)	28	(±0.7)	26	(±0.7)
Age (yrs)									
18–34	26,627	42	(±0.9)	31	(±0.9)	16	(±0.7)	13	(±0.7)
35–49	23,061	67	(±1.0)	52	(±1.0)	32	(±0.9)	27	(±1.1)
50–64	14,132	79	(±1.1)	61	(±1.4)	38	(±1.3)	37	(±1.3)
≥65	15,350	80	(±1.0)	55	(±1.3)	33	(±1.2)	34	(±1.2)
Race/Ethnicity									
White§	68,304	64	(±0.6)	49	(±0.6)	30	(±0.6)	26	(±0.5)
Black§	7,326	55	(±1.8)	32	(±1.6)	12	(±1.1)	11	(±1.0)
Hispanic	3,540	51	(±2.7)	31	(±2.4)	16	(±1.9)	—¶	
Education (yrs)									
<12	13,295	57	(±1.4)	32	(±1.3)	16	(±1.0)	15	(±1.0)
12	27,135	57	(±0.9)	41	(±0.9)	24	(±0.8)	24	(±0.8)
>12	38,740	67	(±0.8)	54	(±0.8)	34	(±0.8)	34	(±0.8)
Diabetes									
Yes	4,117	80	(±1.9)	55	(±2.4)	33	(±2.3)	27	(±2.8)
No	75,053	61	(±0.6)	45	(±0.6)	27	(±0.5)	24	(±0.5)
Hypertension**									
Yes	14,581	82	(±1.0)	60	(±1.4)	36	(±1.3)	31	(±1.7)
No	64,589	58	(±0.6)	43	(±0.6)	25	(±0.5)	23	(±0.5)
Overweight††									
Yes	18,379	68	(±1.1)	50	(±1.2)	30	(±1.1)	27	(±1.1)
No	60,791	60	(±0.7)	45	(±0.7)	27	(±0.6)	24	(±0.6)
Sedentary§§									
Yes	45,803	59	(±0.7)	41	(±0.7)	23	(±0.6)	22	(±0.6)
No	33,367	66	(±0.9)	52	(±0.9)	32	(±0.8)	28	(±0.9)
Smoker									
Yes	18,775	54	(±1.1)	38	(±1.1)	20	(±0.9)	19	(±0.9)
No	60,395	64	(±0.6)	48	(±0.7)	30	(±0.6)	26	(±0.6)
Total	**79,170**	**62**	**(±0.6)**	**46**	**(±0.6)**	**27**	**(±0.5)**	**24**	**(±0.5)**

*Standardized for age, sex, race, and educational attainment using 1980 U.S. census data. Each demographic variable was standardized for the other three demographic variables only.

†Confidence interval.

§Non-Hispanic.

¶Standardized data not available for Hispanics and Asians/Pacific Islanders.

**Hypertension defined as being told more than once that blood pressure is high or being treated for hypertension.

††Overweight defined as a body mass index (BMI) (BMI = weight[kg]/height[m^2] ≥27.8 for men, and ≥27.3 for women; these values represent the 85th percentile of BMI for persons in the U.S. aged 20–29 years, estimated from the Second National Health and Nutrition Examination Survey.

§§Defined as less than three 20-minute sessions of leisure-time physical activity per week.

Cholesterol – Continued

cholesterol reduction, 2) the availability and quality of health care, and 3) the socioeconomic resources within communities.

Despite the relatively low level of cholesterol awareness, in recent years, substantial progress has been made in increasing cholesterol screening and awareness. For example, previous studies have indicated the proportion of U.S. adults who knew their cholesterol levels increased substantially from 1986 through 1990 (*9,10*). Public and private program efforts to increase awareness of both health-care providers and the public have included mass media campaigns, cholesterol screenings, and educational seminars. In addition, to increase identification and treatment of high blood cholesterol, the NCEP mailed guidelines to approximately 150,000 primary-care physicians in the United States. However, to contribute to further reductions in CHD morbidity and mortality, this report suggests that additional efforts are needed to increase cholesterol screening and awareness among young adults, minorities, and persons with less than a high school education.

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Epidemiologic Notes and Reports

Seroconversion to Simian Immunodeficiency Virus in Two Laboratory Workers

Simian immunodeficiency viruses (SIVs) are lentiviruses that cause acquired immunodeficiency syndrome (AIDS)-like illnesses in susceptible macaque monkeys and are used in the study of AIDS (*1*). In November 1988, CDC published guidelines to minimize the risk of SIV transmission to research laboratory workers (*2*). This report summarizes the investigation of two laboratory workers who seroconverted following occupational exposures to SIV.

Seroconversion to SIV – Continued

Case 1

In March 1990, a technician at a research laboratory sustained a stick with a blood-contaminated needle while attempting to disconnect the vacutainer holder from the needle after obtaining blood from an anesthetized SIV-infected macaque. The macaque had been inoculated with SIV 6 months earlier, had seroconverted, was SIV culture-positive, and was symptomatic. The needle, visibly contaminated with blood, penetrated a latex glove and produced a deep puncture wound that caused the thumb to bleed. After removing the glove, the worker immediately scrubbed the wound with a povidone-iodine solution and then with a 10% bleach solution. Marked inflammation and swelling developed at the wound site and persisted for several weeks. The worker was treated with oral dicloxacillin and warm compresses. The wound site was not cultured.

Serum samples collected 1 week before the exposure, 1 week after the exposure, monthly over the following 12 months, and 19 months later were tested. None were reactive to human immunodeficiency virus (HIV)-1 by enzyme immunoassay (EIA) or by Western blot (WB) or to HIV-2 or SIV by whole-virus EIAs. However, serum samples obtained during June 1990–March 1991 were reactive to a number of synthetic peptides derived from the transmembrane region of SIV and HIV-2, and the titer to one of these peptides peaked from June through August 1990, and subsequently declined.

Testing by HIV-2 WB first showed reactivity to envelope (*env*) gp41 from a sample obtained during July 1990; testing showed a weak reactivity to group-specific antigen (*gag*) p27 in all the samples, including the preexposure sample. SIV WB showed no bands on the serum samples obtained during March–June 1990 and a weak *gag* p27 band after July 1990. Radioimmunoprecipitation (RIPA) also showed reactivity to the *env* protein gp130 in serum samples obtained during August 1990–March 1991, with peak intensity in the sample obtained in August (*3*).

Cultures of peripheral blood mononuclear cells (PBMCs) collected monthly were negative for SIV. Polymerase chain amplification (PCR) of PBMCs using primers and probes from the *gag* (*4*) and polymerase (*pol*) (*5*) region of SIV with nested amplification in *pol*, and with *pol*-, LTR- and *env*-nested primers representing consensus sequences of HIV-2 and SIV (*5*) were also negative (*3*).

Thirteen months after the exposure, 10 mL of heparinized blood obtained from the worker was inoculated into a young, healthy, SIV-negative Rhesus macaque. For 10 months after inoculation, biweekly to monthly serum samples obtained from the monkey were negative for SIV antibody by whole-virus EIA and by synthetic peptide EIAs, and the monkey showed no evidence of SIV infection by PCR.

Case 2

A laboratory worker at another research facility, first tested in April 1992, was reactive by HIV-2 whole-virus and peptide EIAs and by SIV-peptide EIA and negative by HIV-1 EIA and WB. HIV-2 WB showed reactivity to numerous viral proteins including *gag*, *pol*, and *env*.

The worker had no history of percutaneous or mucous membrane exposure to SIV. However, during September–October 1989, the worker had severe dermatitis involving the forearms and hands that required treatment with oral steroids. The worker performed serology on clinical specimens from SIV-infected monkeys without gloves. The person also worked with SIV-infected cell cultures, but all procedures were done in a laminar flow biosafety cabinet with protective wear (laboratory coat and gloves).

Seroconversion to SIV — Continued

Serum samples from the laboratory worker obtained during 1988 and one during November 1989 were thawed and tested and were negative for HIV-1, HIV-2, and SIV seroreactivity by EIA and WB. A stored serum sample from the worker obtained during April 1990 was reactive by HIV-2 and SIV EIA, and showed *gag* and *env* reactivity by HIV-2 WB. Testing of nine other serum specimens obtained from the worker during April 1990–April 1992 showed persistent seroreactivity to HIV-2 and SIV. Serum titers to one peptide derived from the transmembrane region of HIV-2 showed an increase in titer over this 2-year period. PCR amplification and viral cultures of PBMCs are pending.

Additional Information

Neither of the two workers have any risk factors for HIV-1 or HIV-2 infection. Both have been in long-term, monogamous sexual relationships, and their respective sex partners tested seronegative for HIV and SIV by EIA and WB. Neither of the two workers had any illness suggestive of an acute retroviral infection and both remain well, with no clinical or laboratory evidence of immunodeficiency.

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Editorial Note: SIVs are primate lentiviruses morphologically similar and biologically related to HIV-1 and HIV-2 (*6,7*). These viruses share with HIV-1 and HIV-2 a tropism for CD4-bearing lymphocytes and monocyte macrophages and can also grow in vitro in human PBMCs. Although they infect some nonhuman primate species without causing disease, experimental infection of other susceptible nonhuman primate species has shown that SIVs can cause chronic wasting syndromes and a disease similar to AIDS (*1*). SIV is genetically and antigenically related to HIV-2, resulting in substantial serologic cross-reactivity (*8*). A recent report of SIV-like HIV-2 isolates among West African persons suggests the possibility that SIV and HIV-2 may represent a single group of viruses (*9*). In both laboratory workers reported here, the serologic reactivity detected cannot be differentiated from that of HIV-2.

The declining antibody titers following a peak 3–5 months after the exposure of the first patient suggest that the worker did not become persistently infected with SIV. However, persistence of antibody over 2 years and an increase in titer suggest that the second patient might have become infected. The implications of seroconversion without demonstrable infection and the health consequences of seroconversion for these workers are unknown.

This report reemphasizes the need for laboratory and animal workers in SIV research laboratories to strictly adhere to recommended guidelines and procedures while working with SIV (*2*). In both cases, departures from recommended safety procedures occurred: in the case of the percutaneous exposure, the vacutainer holder was disconnected before disposal of the contaminated needle; and in the second case, despite open skin lesions and without use of gloves, work was performed on clinical specimens. A similar case was reported of a laboratory worker with dermatitis on exposed skin who acquired HIV-1 infection in the laboratory (*10*).

The 3-month time lapse from exposure to seroconversion for the first worker emphasizes the need for a follow-up of at least 3–6 months for persons sustaining unintentional exposures to SIV. In addition, the whole-virus HIV-2 and SIV EIAs were less sensitive than peptide-based EIAs, HIV-2/SIV WBs, and RIPAs in detecting seroreactivity; therefore, investigation of persons sustaining exposures to SIV should include these sensitive assays.

Seroconversion to SIV — Continued

The frequency of exposures in SIV research laboratories and the risk of seroconversion in SIV laboratory and animal-care workers have not been well defined. Approximately 200–300 persons are working with these agents in U.S. laboratories. CDC has investigated two other persons with percutaneous exposures involving cuts with scalpels during necropsies on SIV-infected animals. Neither have shown any evidence of seroconversion up to 6 months after the incidents. CDC, in collaboration with the National Institutes of Health, is conducting a serosurvey of workers in federally funded SIV research facilities to estimate the prevalence of such seroreactivity in persons with potential exposure to SIV.

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Current Trends

Update: Eradication of Paralytic Poliomyelitis in the Americas

On August 23, 1991, a 2-year-old boy in the district of Junin, Peru, had onset of symptoms of culture-confirmed paralytic poliomyelitis. This is the last case of paralytic poliomyelitis with a wild poliovirus isolate reported to the Pan American Health Organization (PAHO) and the first time since reporting of poliomyelitis began in the Western Hemisphere that no such paralytic disease has been detected for an entire year. This report updates the poliomyelitis eradication effort in the Americas.

The initiative to eradicate the indigenous transmission of wild poliovirus from the Western Hemisphere was initiated by the Director of PAHO in May 1985 (*1*). Using national vaccination days with live, oral poliovirus vaccine (OPV) and intensive surveillance activities, the number of cases of poliomyelitis caused by wild poliovirus decreased from approximately 1000 reported cases in 1986 to nine laboratory-confirmed cases in 1991. Eight of the nine cases detected in 1991 occurred in Colombia during January through April.

Paralytic Poliomyelitis — Continued

An extensive active surveillance system for acute flaccid paralysis (AFP), used as a proxy indicator of paralytic poliomyelitis, has been established in all countries in Latin America. More than 20,000 health units participate in the network and report each week on the occurrence or absence of AFP. A parallel laboratory-based surveillance network was also established to isolate and characterize polioviruses. Of the more than 6000 stool specimens collected from case-patients with AFP tested during 1990–1992, wild poliovirus was isolated from 18 persons with confirmed poliomyelitis* in 1990, nine in 1991, and none thus far in 1992.

In July 1990, PAHO established an International Certification Commission to independently verify whether transmission of wild poliovirus infection has been truly interrupted in the Americas. The work of the Commission is expected to last at least until 1995. If surveillance for AFP is maintained at very high levels and if no confirmed cases of paralytic poliomyelitis are detected over a 3-year period, the Americas will be certified as polio-free. However, vaccination coverage must be maintained at high levels until global eradication has been accomplished.

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Editorial Note: Based on the successful implementation of the eradication initiative in the American Region and the progress of the Expanded Program on Immunization in achieving high levels of vaccination coverage worldwide, the 41st World Health Assembly adopted a resolution in May 1988 that called for the global eradication of poliomyelitis by the year 2000 (*2*). Countries in the Western Pacific Region of the World Health Organization (WHO), including the Peoples Republic of China, have established the goal of poliomyelitis eradication by 1995. Although many of the countries of the African, Eastern Mediterranean, European, and Southeast Asia regions still report endemic poliomyelitis, regional and national elimination plans have been developed and are being implemented. Although WHO estimates that the current worldwide reporting efficiency for poliomyelitis is only approximately 10%, the number of reported cases declined to 12,992 in 1991, representing a 41% decrease from 1990 and a 60% decrease from 1988.

The apparent elimination of wild poliovirus infection in the Americas underscores the feasibility of achieving a similar goal in other regions. The current WHO-recommended strategy for the global eradication effort is based on the experience gained by PAHO and includes maintaining high OPV coverage levels in all districts; improving surveillance of AFP; conducting supplemental vaccination activities, such as national vaccination campaigns (in addition to the routine program); and establishing a global laboratory network. The WHO strategy offers the best means available to eliminate poliomyelitis from other areas of the world, and all areas with endemic polio should plan to implement this approach. Major challenges facing the global initiative are to 1) generate the necessary political and social will in all countries; 2) identify sufficient funds to purchase vaccine and conduct eradication activities; 3) seek means of reducing the cost of OPV; and 4) refine strategies to achieve eradication in the most timely and cost effective manner.

Reference

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*Either from case-patient or from children in contact with case-patient.

Paralytic Poliomyelitis — Continued

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Notice to Readers

Child Health Day

CDC, the National Institute of Child Health and Human Development of the National Institutes of Health, and a coalition of other federal and private agencies will cosponsor the 11th Child Health Day National Symposium on October 5, 1992, at the National Institutes of Health in Bethesda, Maryland. Childhood immunization is the theme for this year's symposium and related programs.

Topics will include identification of barriers to vaccination and model programs overcoming such barriers, advances in vaccines, and strategies to achieve the national health objectives for the year 2000. The symposium is free of charge, and no preregistration is required.

Local programs are encouraged to participate in Child Health Day by tailoring similar activities to their communities' needs. Community planning and media kits are available. Information about Child Health Day is available from CDC's Division of Immunization, National Center for Prevention Services, telephone (404) 639-0529 or (404) 639-1867.

The *Morbidity and Mortality Weekly Report* (*MMWR*) Series is prepared by the Centers for Disease Control and is available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone (202) 783-3238.

The data in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. Inquiries about the *MMWR* Series, including material to be considered for publication, should be directed to: Editor, *MMWR* Series, Mailstop C-08, Centers for Disease Control, Atlanta, GA 30333; telephone (404) 332-4555.

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HHS Publication No. (CDC) 92-8017